

### ABSTRACT OF THE INVENTION

An interferometry system for making interferometric measurements of an object, the system including a source assembly that generates an input beam; a detector assembly that includes a detector element; and an interferometer that includes a source imaging  
5 system that images the input beam onto a spot on or in the object and an object imaging system that images the spot onto the detector element as an interference beam, the object imaging system combining light coming from the spot with a reference beam to produce the interference beam, wherein the source imaging system is characterized by a first aperture stop that defines a first aperture and includes a first phase shifter that introduces  
10 a first phase shift in light passing through a first region of the first aperture relative to light passing through a second region of the first aperture, and wherein the object imaging system is characterized by a second aperture stop that defines a second aperture and includes a second phase shifter that introduces a second phase shift in light passing through a first region of the second aperture relative to light passing through a second  
15 region of the second aperture.